



## DEPARTMENT OF THE INTERIOR

### Fish and Wildlife Service

#### 50 CFR Part 17

[Docket No. FWS–R6–ES–2018–0055; FF09E21000 FXES1111090FEDR 223]

RIN 1018–BD17

### Endangered and Threatened Wildlife and Plants; Threatened Species Status for Chapin Mesa Milkvetch and Designation of Critical Habitat; Withdrawal

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Proposed rule; withdrawal.

**SUMMARY:** We, the U.S. Fish and Wildlife Service (Service), withdraw the proposed rule to list the Chapin Mesa milkvetch (*Astragalus schmolliae*) as a threatened species under the Endangered Species Act of 1973, as amended (Act). We concurrently withdraw the proposed rule to designate critical habitat for the species. This withdrawal is based on our conclusion that the conservation plan for Chapin Mesa milkvetch at Mesa Verde National Park, and its associated implementation plan, in addition to new standard operating procedures for fire management at Mesa Verde National Park, reduce the threats to the species such that it no longer meets the Act’s definition of an “endangered species” or a “threatened species.” Therefore, we are withdrawing our proposal to list the Chapin Mesa milkvetch as a threatened species and our proposal to designate critical habitat for the species.

**DATES:** The proposed rule that published on September 17, 2020 (85 FR 58224), to list the Chapin Mesa milkvetch as a threatened species and to designate critical habitat for the Chapin Mesa milkvetch is withdrawn on [INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** Relevant documents used in the preparation of this withdrawal are available on the Internet at <http://www.regulations.gov> at Docket No. FWS–R6–ES–2018–0055.

**FOR FURTHER INFORMATION CONTACT:** Ann Timberman, Western Colorado Field Supervisor, U.S. Fish and Wildlife Service, Colorado Ecological Services Office, 445 West Gunnison Ave, Suite 240, Grand Junction, CO 81501; telephone 970–243–2778. Persons who use a telecommunications device for the deaf may call the Federal Relay Service at 800–877–8339.

## **SUPPLEMENTARY INFORMATION:**

### **Previous Federal Actions**

On September 17, 2020, we proposed to list Chapin Mesa milkvetch as a threatened species under the Act (16 U.S.C. 1531 *et seq.*), and to designate critical habitat (85 FR 58224). Please refer to that proposed rule for a detailed description of previous Federal actions concerning Chapin Mesa milkvetch prior to 2020. The September 17, 2020, proposed rule had a 60-day comment period, ending November 16, 2020. During this public comment period, we invited the public to comment on the proposed rule in light of draft conservation plans for the species from Mesa Verde National Park (Park) and the Ute Mountain Ute Tribe. Since publication of the proposed rule, the Park provided supplemental information to their plan that allowed the Service to conclude the plan is sufficiently certain to be implemented and effective, and we consider this in making our final listing determination, in accordance with the Policy for Evaluation of Conservation Efforts When Making Listing Decisions (PECE) (68 FR 15100; March 28, 2003).

### **Supporting Documents**

Prior to publishing the proposed listing rule (85 FR 58224; September 17, 2020), we conducted a species status assessment (SSA) for the Chapin Mesa milkvetch, with

input and information provided by the Park, the Colorado Natural Heritage Program, and the Ute Mountain Ute Tribe. The results of this assessment are summarized in an SSA report, which represents a compilation of the best scientific and commercial data available concerning the status of the species, including the past, present, and future stressors to this species (Service 2021a, entire). Additionally, the SSA report contains our analysis of required habitat and the existing conditions of that habitat. After publication of the September 17, 2020, proposed listing rule, we updated the SSA with newly available information, including the latest precipitation data and updated values for seedling survival in the burned subunit of the Chapin Mesa representative unit (Service 2021a, entire).

In accordance with our joint policy on peer review published in the *Federal Register* on July 1, 1994 (59 FR 34270), and our August 22, 2016, memorandum updating and clarifying the role of peer review of listing actions under the Act, we sought the expert opinions of six appropriate subject matter specialists regarding our SSA report for Chapin Mesa milkvetch. We received responses from five specialists. We incorporated the results of this peer review process into the final SSA report, which informed the underlying analysis and scientific basis for this finding.

### **Summary of Comments and Recommendations**

As stated above under **Previous Federal Actions**, on September 17, 2020, we published a proposed rule to list Chapin Mesa milkvetch as a threatened species under the Act, and to designate critical habitat (85 FR 58224). The proposed rule had a 60-day comment period, ending November 16, 2020. We also contacted appropriate State, Federal, and Tribal agencies and other interested parties and invited them to comment on the proposal. A newspaper notice inviting general public comment was published in The Journal, a newspaper servicing Cortez, Mancos, and Dolores, Colorado. We also sought

peer review on the SSA report (see **Supporting Documents**, above). All substantive information regarding the listing of Chapin Mesa milkvetch that was provided during peer reviews and the comment period has been incorporated directly into this final determination or into our SSA report, as appropriate, or is addressed below. Comments concerning the proposed critical habitat designation for the species are not addressed here; given the decision to withdraw the listing proposal, no further assessment of the proposed critical habitat designation is necessary at this time.

#### *Peer Review Comments*

We reviewed all comments we received from the peer reviewers for substantive issues and new information regarding Chapin Mesa milkvetch. The peer reviewers provided additional information, clarifications, and suggestions to improve the SSA report, which we incorporated directly into the SSA report, or address in the responses to comments below. We only address substantive comments from these reviewers below; we resolved minor editorial comments in the text of the SSA report.

*(1) Comment:* One reviewer suggested that we needed more detail to describe the methods researchers used to collect the monitoring data we include in the SSA report.

*Our Response:* The purpose of the SSA is to gather and compile information on the status of this species in order to assess its current condition and project the species' future condition. Adding detailed information on the monitoring methodologies our partners use is not necessary to assess the current and future conditions for this species in the SSA report, because these methods are adequately described in other papers. More details on monitoring methods are available in Anderson (2004), Rondeau et al. (2016), and Rondeau (2017), which are cited throughout our SSA report.

*(2) Comment:* Some reviewers commented that we needed to incorporate additional quantitative data, as qualitative data cannot answer the questions that are most relevant to ensuring persistence and survival of the species.

*Our Response:* Section 4 of the Act directs the Service to make determinations on whether any species is an endangered or a threatened species “solely on the basis of the best scientific and commercial data available” (16 U.S.C. 1533(b)(1)(A)). In the SSA, we used quantitative data when available, but, in some cases, qualitative data is the best available information. We used this quantitative and qualitative data to evaluate multiple metrics relevant to assessing the resiliency of each representative unit. In the case of Chapin Mesa milkvetch, given limited availability of quantitative data, we evaluated the level of intact native understory and presence of exotic plants qualitatively. However, even with qualitative evaluations for these metrics, we were able to evaluate the resiliency of each representative unit and summarize the current and future viability of the species (Service 2021a, pp. 32–41); we acknowledge the uncertainties inherent in this method in the SSA (Service 2021a, p. 33). These evaluations of current and future viability, which were based on the best available scientific data, informed our determination of species’ status.

*(3) Comment:* One reviewer expressed concern that the only monitoring data included in the SSA report are from monitoring that has occurred on Chapin Mesa, and therefore does not cover the entire range of the species.

*Our Response:* We agree that monitoring information from the rest of the species’ range would be useful. However, section 4 of the Act directs the Service to make determinations whether any species is an endangered or a threatened species “solely on the basis of the best scientific and commercial data available” (16 U.S.C. 1533(b)(1)(A)). Monitoring data from other representative units are not available to us at this time.

*(4) Comment:* One reviewer commented that the SSA has no discussion of current or future conservation actions being implemented.

*Our Response:* When the SSA report was originally written (2018), we were not aware of any ongoing conservation actions. Following the completion of the first version

of the SSA report, draft conservation plans from the Park and the Ute Mountain Ute Tribe became available that discussed future conservation activities. However, we had not yet evaluated these plans under our PECE policy, and the Park had not yet completed its implementation plan. We have since updated our discussion of conservation efforts in the SSA to incorporate relevant ongoing conservation activities and information from the Park's conservation plan and implementation plan for Chapin Mesa milkvetch at Mesa Verde National Park; these conservation efforts also informed updated analysis on species' status in this notice, in accordance with the provisions of the PECE policy (Service 2021b, entire).

*(5) Comment:* One reviewer commented that Anderson (2004) includes a plausible boundary for the population south of the Park based on records and observations in the Ute Mountain Ute Tribal Park.

*Our Response:* The Anderson (2004) plausible boundary on Ute Mountain Ute Tribal land was determined using an element occurrence record from the Colorado Natural Heritage Program from 1987, and was adapted to include major landscape features and jurisdictional boundaries, because surveyors were not granted access to Ute Mountain Ute land to conduct formal surveys. In order to accurately update or expand this element occurrence record polygon for the Ute Mountain Ute Tribal Park representative unit, we would need additional surveying on Tribal lands and access to survey results. These data are not available to us at this time; therefore, we consider the polygon used in the SSA report to represent the best available scientific information on the location of the species on Ute Mountain Ute Tribal lands.

*(6) Comment:* One reviewer suggested that the use of herbarium specimens could confirm the historical distribution of the species, as several regional herbaria hold specimens of Chapin Mesa milkvetch collected prior to the 1945 description.

*Our Response:* We agree that such information could further confirm our existing understanding of the historical distribution of this species. However, the peer reviewer noted that the SSA's description of historical distribution, which was based on information from sources other than these herbarium records, was accurate, even without consideration of these early herbarium specimens. These early specimens were all collected from within or near Mesa Verde National Park, so they only further confirm the accuracy of the information we cited from other sources regarding where the species historically occurred. Thus, referencing these herbarium specimen is not necessary in our SSA since this additional detail would not have changed our understanding of the species' range and viability.

*(7) Comment:* One reviewer commented that the reference to a personal communication from Clow (2017, pers. comm.) implies that survey work has been done recently on Ute Mountain Ute land.

*Our Response:* The Tribe has communicated to us that Chapin Mesa milkvetch is present on Tribal land and we know that they have begun to conduct surveys on their Tribal lands; however, no survey data were provided to us for the SSA report or this final determination.

*(8) Comment:* One reviewer suggested including information from literature on other species in the genus *Astragalus*, as many of the references used in the SSA report are not peer-reviewed, nor publicly available.

*Our Response:* For the purposes of the SSA report, we considered references that are specific to Chapin Mesa milkvetch to be the best available information, even though some were not peer-reviewed. We considered information on closely related species, where applicable. We have reviewed and considered the suggested references on the *Astragalus* genus. Most of the references provided insights into other narrow endemics that were not closely related to Chapin Mesa milkvetch. However, one species,

*Astragalus microcymbus*, occurs nearby and exhibits prolonged dormancy, like Chapin Mesa milkvetch; as such, we added this citation to the SSA report.

*(9) Comment:* One reviewer suggested including additional climate-related information from the Climate Change Vulnerability Assessments developed by the Colorado Natural Heritage Program and the Bureau of Land Management (CNHP 2021).

*Our Response:* Because the species only occurs on Mesa Verde National Park and the Ute Mountain Ute Tribal Park, we used climate data specific to this region; therefore, we consider the information we used in the SSA report to be the best available scientific information on downscaled climate impacts. For more information on the climate change analysis we considered, see the discussion of future climate projections under **Summary of Biological Status and Threats**, below.

*(10) Comment:* One reviewer requested that we add more detailed information about proposed fire management activities.

*Our Response:* We have included a table in section 3.1 of the SSA report that describes existing and proposed impacts from fire management activities in Mesa Verde National Park (Service 2021a, pp. 19-22).

*(11) Comment:* One reviewer commented that post-fire mitigation could influence Chapin Mesa milkvetch if mitigation is conducted with herbicides on a large scale.

*Our Response:* We consider the effects of post-fire herbicide application in Appendix A of the SSA report. While direct effects from herbicide use have occurred to individual Chapin Mesa milkvetch plants in the past, there has not been evidence of population-level effects. Additionally, the Park currently does not use herbicides on a large scale (NPS 2018, p. 11). Therefore, we do not consider herbicides to be a major driver of the species' condition and do not discuss them further in the SSA report. For more detail on herbicides, see Appendix A of the SSA report.

*Public Comments*



We received several comments in support of listing Chapin Mesa milkvetch and designating critical habitat for the species. These comments offered general support but did not provide additional information for us to consider in our final listing decision. We address substantive comments we received from public commenters below.

*(12) Comment:* The Ute Mountain Ute Tribe provided a comment stating their commitment to taking an active role in conservation and asked the Service to recognize the Tribe's right to manage plants and wildlife on Tribal lands. The Tribe also requested that the Service review their “Conservation Plan for the Chapin Mesa Milkvetch (*Astragalus schmolliæ*)” (Ute Mountain Ute Tribe 2020, entire). The Tribe also provided a list of conservation efforts that they have undertaken that benefit the species.

*Our Response:* As requested, we reviewed the Tribal “Conservation Plan for the Chapin Mesa Milkvetch (*Astragalus schmolliæ*)” (Tribal Plan). We commend the Tribe’s commitment to conservation and appreciate the efforts they have already undertaken to aid the species. We find that this Tribal Plan, if implemented, would likely provide benefit to the species; although, due to uncertainty in future levels of implementation and effectiveness, future conservation efforts outlined in the Tribal Plan were not considered in our final listing decision. We do, however, recognize and value the conservation actions that the Ute Mountain Ute Tribe has already completed and is currently implementing to conserve this species, and we incorporated consideration of these activities in our final listing determination.

*(13) Comment:* One commenter provided a comment in support of listing the species as endangered rather than threatened. They indicated that, as the species has only one potentially viable population that could be wiped out by a single catastrophic event (i.e., fire, fuel spill, illegal grazing) and as the species has low adaptability, the Service should list it as an endangered species rather than a threatened species.

*Our Response:* An “endangered species” is defined by the Act as any species which is in danger of extinction throughout all or a significant portion of its range. Our determination about whether Chapin Mesa milkvetch warrants listing as endangered was informed by our analysis of the species’ current condition in our SSA, rather than the projected future condition of the species, because the definition of an “endangered species” states that the species is in danger of extinction now. The species currently has a large representative subunit (the unburned Chapin Mesa subunit) that is considered highly resilient. Additionally, the species currently has more than one extant population; all four representative units are currently in moderate condition, providing for some additional redundancy and adaptive capacity. Therefore, we determine that the current risk of extinction is low, and the species is not currently in danger of extinction throughout its range. For more information on our determination that Chapin Mesa milkvetch does not meet the Act’s definition of an “endangered species,” see *Determination of Species Status*, below.

However, even when we examine the projected future condition of the species, in light of the new information in the Park’s conservation plan for Chapin Mesa milkvetch at Mesa Verde National Park, associated implementation plan, and wildfire emergency response procedure, we now find that Chapin Mesa milkvetch does not warrant listing as a threatened species under the Act. First, we conclude it is not plausible that a fuel spill or illegal grazing could occur to such an extent that it extirpates the entire Chapin Mesa milkvetch representative unit, particularly given its protected location on National Park and Tribal Park lands. Thus, we did not consider these stressors as part of our plausible future scenarios. Additionally, based on the Park’s commitments to maintain and restore pinyon-juniper overstory, to conduct fire management such that it reduces the risk of catastrophic wildfire in the Park while also minimizing impacts to the species, and to quickly suppress fire, the resiliency, redundancy, and representation of Chapin Mesa

milkvetch, including the resiliency of the Chapin Mesa representative unit, will likely remain the same or better than current condition into the foreseeable future; thus, the risk of extinction remains low for Chapin Mesa milkvetch into the foreseeable future.

Therefore, after assessing the best available information, we conclude that Chapin Mesa milkvetch is not in danger of extinction throughout all of its range nor is it likely to become so in the foreseeable future. For more information on our determination that Chapin Mesa milkvetch does not meet the Act's definition of a "threatened species," see *Determination of Species Status*, below.

## **Background**

A thorough review of the taxonomy, range and distribution, life history, and ecology of the Chapin Mesa milkvetch is presented in the SSA report (Service 2021a, pp. 3–14; available at [http:// www.regulations.gov](http://www.regulations.gov) at Docket No. FWS–R6–ES–2018–0055) and is briefly summarized here. Chapin Mesa milkvetch is a narrow endemic, upright, perennial herb primarily found on the tops of mesas in southwestern Colorado in Montezuma County on land administered by the National Park Service (NPS) and the Ute Mountain Ute Tribe. Chapin Mesa milkvetch is a member of the family Fabaceae (legume family) and was known by the common name Schmoll's milkvetch prior to 2015. The stems of Chapin Mesa milkvetch are purplish below, green above, tall (45 to 60 centimeters (cm) (18 to 24 inches)), branching from the base, with short, stiff, appressed hairs (lying closely and flatly against the plant's surface) on the foliage. Leaves are pinnate with 11 to 13 linear leaflets, 1 to 2 millimeters (0.04 to 0.08 inches) wide, and 1 to 3 cm (0.4 to 0.8 inches) long. Flowers are yellowish-white or cream colored, and 12 to 13 cm (4.7 to 5.1 inches) long with bracts that extend under the flower that have black hairs. The distinguishing characteristic of the species is the leathery pod (Service 2021a, pp. 3–4).

Chapin Mesa milkvetch plants emerge in early spring and usually begin flowering in late April or early May. Flowering continues into early or mid-June; fruit set begins in late May and occurs through June; and, by late June, most fruits, while still attached to the plant, have opened and released their seeds (Service 2021a, p. 6). During very dry years, like many other *Astragalus* species, the plants can remain dormant with no above-ground growth (Colyer 2003 in Anderson 2004, p. 11). Chapin Mesa milkvetch requires pollination by insects to set fruit; the flowers require a strong insect for pollination because the insect must force itself between the petals of the papilionaceous (butterfly-shaped) flowers (Green 2012, p. 2).

The emergence and density of Chapin Mesa milkvetch are strongly tied to winter precipitation. Years with “wet” winters (precipitation falling primarily as snow) precede high density counts, and years with dry winters translate to low or no emergence (Rondeau 2017, p. 3). Climate requirements for seedling emergence and survival are not well known; however, we infer that spring moisture is also critical, as seedling survival relies on growing deep roots quickly (Rondeau 2017, p. 9). It is likely that winter moisture coupled with winter temperature is also important for seedlings due to available soil moisture for seedling survival (Rondeau 2017, p. 16).

Chapin Mesa milkvetch’s global distribution is constrained almost entirely to the Chapin Mesa within the Park and the Ute Mountain Ute Tribal Park in southern Colorado, with some outlying areas on neighboring Park Mesa and West Chapin Spur, both of which are within the boundaries of the Park (Rondeau 2017, p. 1). Chapin Mesa milkvetch habitat occupies approximately 2,000 acres (ac) (809 hectares (ha)) in the Park (CNHP 2010, pp. 12–19; Anderson 2004, pp. 25, 30). While the species has been observed on the Ute Mountain Ute Tribal Park, we do not know how much occupied habitat occurs there.

The habitat for Chapin Mesa milkvetch is dense pinyon-juniper woodland of mesa tops, with deep, reddish, loess soil (Service 2021a, p. 7). Pinyon-juniper trees are easily killed by fires and are slow to regenerate (Romme et al. 2003, p. 344.). The historical fire regime of the pinyon-juniper woodlands on the mesa tops of the Mesa Verde area is characterized by lightning-caused, infrequent (around a 400-year rotation), stand-replacing fires, as opposed to low-severity, stand-thinning fires (Romme et al. 2003, p. 338; Floyd et al. 2004, p. 286).

The best available information indicates that the species consists of one large, interconnected population. Like many rare plants, Chapin Mesa milkvetch is globally rare, but is locally abundant throughout its occupied habitat (Rondeau 2017, p. 1). Regular monitoring has occurred in the Park since 2001 in established monitoring plots; however, the best available scientific information does not allow estimating a global population size or overall population density (Service 2021a, p. 4). The existing monitoring reports provide insights into the levels of seedling survival in the Chapin Mesa representative unit, which we used to characterize resiliency in the SSA (Rondeau 2020, entire). They also provide information on the relationship between fire, seasonal precipitation, and various demographic characteristics (e.g., plant density and recruitment), which furthered our understanding of how and when wildfire impacts the plant (Rondeau 2020, entire). Finally, these monitoring reports provide information on plant density over time; levels of germination over time; amount of fruit production over time; age class ratios; and mortality rates over time in certain parts of the species' range (Rondeau 2020, entire).

## **Regulatory and Analytical Framework**

### *Regulatory Framework*

Section 4 of the Act (16 U.S.C. 1533) and its implementing regulations (50 CFR part 424) set forth the procedures for determining whether a species is an “endangered

species” or a “threatened species.” The Act defines an “endangered species” as a species that is in danger of extinction throughout all or a significant portion of its range, and a “threatened species” as a species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The Act requires that we determine whether any species is an “endangered species” or a “threatened species” because of any of the following five factors:

(A) The present or threatened destruction, modification, or curtailment of its habitat or range;

(B) Overutilization for commercial, recreational, scientific, or educational purposes;

(C) Disease or predation;

(D) The inadequacy of existing regulatory mechanisms; or

(E) Other natural or manmade factors affecting its continued existence.

These factors represent broad categories of natural or human-caused actions or conditions that could have an effect on a species’ continued existence. In evaluating these actions and conditions, we look for those that may have a negative effect on individuals of the species, as well as other actions or conditions that may ameliorate any negative effects or may have positive effects.

We use the term “threat” to refer in general to actions or conditions that are known to or are reasonably likely to negatively affect individuals of a species. The term “threat” includes actions or conditions that have a direct impact on individuals (direct impacts), as well as those that affect individuals through alteration of their habitat or required resources (stressors). The term “threat” may encompass—either together or separately—the source of the action or condition or the action or condition itself.

However, the mere identification of any threat(s) does not necessarily mean that the species meets the statutory definition of an “endangered species” or a “threatened

species.” In determining whether a species meets either definition, we must evaluate all identified threats by considering the expected response by the species, and the effects of the threats—in light of those actions and conditions that will ameliorate the threats—on an individual, population, and species level. We evaluate each threat and its expected effects on the species, then analyze the cumulative effect of all of the threats on the species as a whole. We also consider the cumulative effect of the threats in light of those actions and conditions that will have positive effects on the species, such as any existing regulatory mechanisms or conservation efforts. The Secretary determines whether the species meets the definition of an “endangered species” or a “threatened species” only after conducting this cumulative analysis and describing the expected effect on the species now and in the foreseeable future.

The Act does not define the term “foreseeable future,” which appears in the statutory definition of “threatened species.” Our implementing regulations at 50 CFR 424.11(d) set forth a framework for evaluating the foreseeable future on a case-by-case basis. The term “foreseeable future” extends only so far into the future as the Service can reasonably determine that both the future threats and the species’ responses to those threats are likely. In other words, the foreseeable future is the period of time in which we can make reliable predictions. “Reliable” does not mean “certain”; it means sufficient to provide a reasonable degree of confidence in the prediction (see 84 FR 45020, August 27, 2019, p. 45027). Thus, a prediction is reliable if it is reasonable to depend on it when making decisions.

It is not always possible or necessary to define foreseeable future as a particular number of years. Analysis of the foreseeable future uses the best scientific and commercial data available and should consider the timeframes applicable to the relevant threats and to the species’ likely responses to those threats in view of its life-history characteristics (50 CFR 424.11(d)). Data that are typically relevant to assessing the

species' biological response include species-specific factors such as lifespan, reproductive rates or productivity, certain behaviors, and other demographic factors.

#### *Analytical Framework*

The SSA report documents the results of our comprehensive biological review of the best scientific and commercial data regarding the status of the species, including an assessment of the potential threats to the species. The SSA report does not represent a decision by the Service on whether the species should be listed as an endangered or threatened species under the Act. However, it does provide the scientific basis that informs our regulatory decisions, which involve the further application of standards within the Act and its implementing regulations and policies. The following is a summary of the key results and conclusions from the SSA report; the full SSA report can be found at Docket No. FWS–R6–ES–2018–0055 on <http://www.regulations.gov>.

To assess Chapin Mesa milkvetch's viability, we used the three conservation biology principles of resiliency, redundancy, and representation (Shaffer and Stein 2000, pp. 306–310). Briefly, resiliency supports the ability of the species to withstand environmental and demographic stochasticity (for example, wet or dry, warm or cold years), redundancy supports the ability of the species to withstand catastrophic events (for example, droughts, large pollution events), and representation supports the ability of the species to adapt over time to long-term changes in the environment (for example, climate changes). In general, the more resilient and redundant a species is and the more representation it has, the more likely it is to sustain populations over time, even under changing environmental conditions. Using these principles, we identified the species' ecological requirements for survival and reproduction at the individual, population, and species levels, and described the beneficial and risk factors influencing the species' viability.



The SSA process can be categorized into three sequential stages. During the first stage, we evaluated the species' life-history needs at the individual, population, and species level. The next stage involved an assessment of the historical and current condition of the species' demographics and habitat characteristics, including an explanation of how the species arrived at its current condition. The final stage of the SSA involved making predictions about the species' responses to positive and negative environmental and anthropogenic influences. Throughout all of these stages, we used the best available information to characterize viability as the ability of a species to sustain populations in the wild over time. We use this information to inform our regulatory decision.

### **Summary of Biological Status and Threats**

Below, we review the biological condition of the species and its needed resources, as well as stressors and conservation efforts that influence its condition, to assess the species' overall viability and the risks to that viability. To evaluate the biological status of the Chapin Mesa milkvetch both currently and into the future, we assessed a range of conditions to consider the species' resiliency, redundancy, and representation. Because Chapin Mesa milkvetch is considered to consist of one large population, for the purposes of our analysis, we divided the range of Chapin Mesa milkvetch into four representative units, which are further broken down into subunits (Service 2021a, p. 24). The Chapin Mesa milkvetch needs multiple, sufficiently resilient subunits distributed across its range to maintain populations into the future and to avoid extinction (Service 2021a, pp. 7–13).

We evaluated a number of stressors with the potential to influence the health and resiliency of Chapin Mesa milkvetch populations, such as competition with nonnative, invasive plant species (i.e., cheatgrass, musk thistle, etc.); wildfire; drought; fire management activities; development of infrastructure; trampling; herbivory; and effects of climate change (Service 2021a, pp. 13–22). We found that the primary drivers

influencing the species' condition are the increased frequency of large, high-intensity wildfires; increasing presence of invasive, nonnative plants, especially cheatgrass; and the interaction between these elements, as explained further under *Summary of Factors Influencing Viability*, below, and in the SSA report (Service 2021a, pp. 27–33).

As described above, we divided the range of Chapin Mesa milkvetch into four representative units (Chapin Mesa, West Chapin Spur, Park Mesa, and Ute Mountain Ute Tribal Park) (Service 2021a, p. 24). We considered representative units to be most resilient when (1) they do not contain nonnative, invasive species or infrastructure development; (2) the unit has sufficient pinyon-juniper canopy cover and intact native understory; (3) seedling survival is sufficient in the unit; and (4) winter and spring precipitation levels are sufficient in the unit (Service 2021a, pp. 24–33). Our analysis found that all four Chapin Mesa milkvetch analysis units currently have moderate levels of resiliency, with one large, unburned subunit in good condition.

Given our uncertainty regarding the future effects of climate change, as well as the other stressors, we projected the future resiliency, redundancy, and representation of Chapin Mesa milkvetch under three plausible future scenarios. Our three future scenarios incorporate three climate scenarios developed by the North Central Climate Science Center in Fort Collins, Colorado, for the San Juan Basin in southwestern Colorado: (1) hot and dry, (2) moderately hot, and (3) warm and wet (Rondeau et al. 2017, Appendix D, pp. 15–21). “Wet” winters are correlated with high Chapin Mesa milkvetch density counts, while dry winters translate to low or no emergence of Chapin Mesa milkvetch in the spring (Rondeau 2017, p. 15). Data collected over 14 years of monitoring reveal a strong correlation between winter precipitation (as snow) and the density of Chapin Mesa milkvetch plants (Rondeau 2017, p. 15). However, climate change models forecast warmer temperatures and a decrease in precipitation, or change in the timing and type of

precipitation, as compared to historical levels, by 2035 and through the end of the century (Rondeau et al. 2017, Appendix D, pp. 15–21; Service 2021a, pp. 34–35).

We evaluated each of our three future scenarios in terms of how it would be expected to impact resiliency, redundancy, and representation of the species by the year 2035. We selected the year 2035 for our evaluation of future scenarios based on available climate projections specific to the San Juan Basin in southwestern Colorado, where Chapin Mesa milkvetch habitat occurs, and based on available analyses on the response of pinyon-juniper communities to these climate changes. These climate models used downscaled data that model the range of plausible future climate conditions for the region to project changes in certain climate variables over time, predict the impact of these changes in climate variables on wildfire frequency and extent, and illustrate the impact of these climate changes and increased wildfire risk on the specific pinyon-juniper communities that support Chapin Mesa milkvetch under three climate scenarios (i.e., (1) hot and dry, (2) moderately hot, and (3) warm and wet) (Rondeau et al, 2017, pp. 9–11; Appendix D, pp. 15–21). However, these downscaled analyses provided insight into the threat of wildfire and the response of pinyon-juniper communities only through the year 2035 (pp. 9–11).

Under the same three climate scenarios, trends for temperature and precipitation projected through 2035 will continue through 2100 in southwestern Colorado (Appendix C, pp. 11–14); climate conditions could still range from warm and wet to hot and dry by 2100 (Rondeau et al. 2017, Appendix C, pp. 11–14). More specifically, all three climate scenarios predict conditions will warm even further by 2100, although the extent to which the climate could warm by the end of the century varies between scenarios (Rondeau et al. 2017, Appendix C, pp. 12–13). Like the projections of climate conditions for 2035, these projections of climate conditions through 2100 present uncertainty as to the extent that precipitation patterns could change, with some scenarios predicting wetter conditions

and others predicting drier conditions (Rondeau et al. 2017, Appendix C, p. 14). While projections for temperature and precipitation in southwestern Colorado are available further into the future than 2035, we do not know specifically how these conditions could alter wildfire frequency or extent in pinyon-juniper communities in southwestern Colorado nor how these communities would respond to these climate conditions by the end of the century. Thus, the best available information on how potential future climate conditions could affect the specific ecological communities on which Chapin Mesa milkvetch depends consider this ecological response only through 2035 (Rondeau et al. 2017, pp. 9–11). Given the uncertainties regarding wildfire risk and species’ response past 2035, future conditions further into the 21st century are less reliable and foreseeable (see 84 FR 45020, August 27, 2019, p. 45027). We can, however, make reliable predictions about the threats to and response of Chapin Mesa milkvetch through 2035.

The future scenarios we evaluated for Chapin Mesa milkvetch through 2035 are as follows (scenarios are discussed in greater detail in the SSA report (Service 2021a, pp. 34–36)):

- Scenario 1 (“Optimistic”): Continuation of the current land management conditions under a “warm and wet” future climate change model;
- Scenario 2 (“Moderate”): Slight increase in fire management activities (i.e., fuels reduction) and infrastructure development under a “moderately hot” future climate change model; and
- Scenario 3 (“Pessimistic”): Significant increase in fire management activities and infrastructure development under a “hot and dry” future climate change model.

Based on our analysis of future condition, the “Pessimistic” scenario is the only scenario under which resiliency could decrease for the species within the foreseeable future, primarily due to the increased risk of wildfire. Having a greater number of self-sustaining units distributed across the known range of the species is associated with an

overall higher viability of the species into the future, as it increases redundancy. We anticipate that the largest Chapin Mesa milkvetch representative unit, Chapin Mesa, will continue to be occupied under all three future scenarios, but with reduced levels of resiliency under the “Pessimistic” scenario (Service 2021a, pp. 37–41). This species inherently has, and has likely always had, a low level of redundancy and representation due to its endemism. Because there is only one large representative unit (Chapin Mesa) and three very small representative units (West Chapin Spur, Park Mesa, and Ute Mountain Ute Tribal Park), this species is at some risk from stochastic and catastrophic events and may have low adaptability to changing conditions (Service 2021a, p. 41). These future resiliency, redundancy, and representation projections in the SSA also do not take into account the potential mitigating effects of the Park’s conservation efforts, which we discuss in additional detail below.

The SSA report (Service 2021a, entire) contains a more detailed discussion of our evaluation of the biological status of the Chapin Mesa milkvetch and the influences that may affect its continued existence. Our conclusions are based upon the best available scientific and commercial data.

We note that, by using the SSA framework to guide our analysis of the scientific information documented in the SSA report, we have not only analyzed individual effects on the species, but we have also analyzed their potential cumulative effects. We incorporate the cumulative effects into our SSA analysis when we characterize the current and future condition of the species. To assess the current and future condition of the species, we undertake an iterative analysis that encompasses and incorporates the threats individually and then accumulates and evaluates the effects of all the factors that may be influencing the species, including threats and conservation efforts. Because the SSA framework considers not just the presence of the factors, but to what degree they

collectively influence risk to the entire species, our assessment integrates the cumulative effects of the factors and replaces a standalone cumulative effects analysis.

### *Summary of Factors Influencing Viability*

As mentioned above under *Regulatory Framework*, a species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1) of the Act. Potential stressors to the Chapin Mesa milkvetch that we evaluated include invasive, nonnative plants (Factor A); wildfires (Factor A); post-fire mitigation (Factor A); wildfire and fuels management (Factor A); trampling and herbivory (Factors A and C); development of infrastructure (Factor A); drought (Factor A and Factor E); and effects of climate change (Factor A and Factor E) (Service 2021a, pp. 13–22). There is no evidence that overutilization (Factor B) of Chapin Mesa milkvetch, disease (Factor C), or other natural or manmade factors affecting the species (Factor E) are occurring. Existing regulatory mechanisms (Factor D) are discussed further below.

We evaluated each potential stressor, including its source, affected resources, exposure, immediacy, geographic scope, magnitude, and impacts on individuals and populations, and our level of certainty regarding this information, to determine which stressors were likely to be drivers of the species' current condition (Service 2021a, Appendix A). Our analysis found that the primary drivers of Chapin Mesa milkvetch current and future condition are the increased frequency of large, high-intensity wildfires; increasing presence of invasive, nonnative plants, especially cheatgrass; and the interaction between these elements, as explained further in the SSA report (Service 2021a, pp. 14–33). We offer a summary of the analysis here.

Invasive, nonnative plants compete with Chapin Mesa milkvetch for space, nutrients, and water, and their invasion has been facilitated by the increased frequency of burns, as well as the creation of fire breaks, that has occurred within Chapin Mesa milkvetch habitat (CNHP 2006, p. 4). Wildfire affects Chapin Mesa milkvetch and its

habitat by eliminating the fire-sensitive pinyon-juniper woodlands and native understory that the species needs (Service 2021a, p. 15), thereby opening up habitat to be colonized by nonnative grasses and clonal shrub species. Pinyon-juniper woodlands that have been burned extensively by wildfires in the past two decades are being replaced by significant invasions of nonnative species (Floyd et al. 2006, p. 1). Cheatgrass was not found in unburned woodland monitoring plots, whereas cheatgrass invasion ranges from 8 to 58 percent cover in the burned monitoring plots (Rondeau 2017, p. 11). We do not have percent cover information on other invasive species within Chapin Mesa milkvetch habitat at this time. The abundance of grasses, especially cheatgrass, western wheatgrass (*Pascopyrum smithii*), and smooth brome (*Bromus inermis*), within the species' habitat is outside the natural range of variation, resulting in a lack of bare ground and biological soil crust, preventing natural succession or return to the pinyon-juniper woodland habitat that Chapin Mesa milkvetch needs, and also reducing the reproductive vigor of Chapin Mesa milkvetch (Rondeau 2017, pers. comm.).

Cheatgrass and other invasive, nonnative plant species have already invaded different parts of the species' range to varying degrees. Five large, high-intensity fires have occurred in the Park and on a large portion of the adjacent Mesa Verde cuesta (i.e., long, sloping ridge) in the last two decades (Floyd et al. 2004, pp. 270, 283). A total of approximately 760.5 ac (307.8 ha) has burned out of the approximately 2,000 ac (809 ha) of Chapin Mesa milkvetch habitat in the Park; this amounts to 38 percent of Chapin Mesa milkvetch habitat in the Park. Climate projections for the San Juan Basin, Colorado, where Chapin Mesa milkvetch occurs, include increased temperatures, more intense and longer lasting heat waves, a longer fire season with greater frequency and extent of fires, and an increased probability of drought, although the extent of these increases varies between climate models and depends partly on future management (Rondeau et al. 2017,

p. 8). These factors could exacerbate the frequency and extent of catastrophic wildfires and the invasion of cheatgrass on Chapin Mesa milkvetch habitat in the future.

#### Conservation and Management Activities

In this determination, we consider both existing ongoing conservation and management activities that benefit Chapin Mesa milkvetch and future conservation efforts that comply with the Service's PECE policy. The Service's PECE policy (68 FR 15100; March 28, 2003) provides a policy framework and criteria for evaluating, within a listing determination, conservation efforts that have not yet been implemented or have not yet demonstrated whether they are effective. For us to consider that a formalized conservation effort contributes to forming a basis for not listing a species or for listing a species as a threatened species rather than an endangered species, we must find that the conservation effort is sufficiently certain to be implemented and effective so as to have contributed to the elimination or adequate reduction of one or more threats to the species identified through the section 4(a)(1) analysis.

First, existing regulatory mechanisms (Factor D) and other ongoing management efforts by the NPS and Ute Mountain Ute Tribe provide benefits to Chapin Mesa milkvetch and lessen the influence of large, high-intensity wildfire, invasive species, and development on species' viability, as the species is located entirely within the Park and the Ute Mountain Ute Tribal Park. Both the Park and the Tribe already implement activities that reduce wildfire risk and preserve Chapin Mesa milkvetch habitat. For example, since we published the proposed listing rule for this species, the Park shared a wildfire emergency response procedure with the Service, which governs all wildfire response in the Park (NPS 2020, entire). According to the Park's wildfire emergency response procedure, the Park will immediately and fully suppress wildfires "while minimizing damage to resources from fire or suppression operations" (NPS 2020, p. 2). The Park also has multiple on-site wildland firefighters, which facilitates quick response



and suppression of fire (Spencer 2021, pers. comm). The Park will incorporate fire management measures currently in the conservation plan for Chapin Mesa milkvetch at Mesa Verde National Park, in the associated implementation plan, and in the wildfire emergency response procedure into a fire management plan by 2022 (Spencer 2021, pers. comm., p. 2; NPS 2020, entire).

*Ute Mountain Ute Tribe:* In January 2020, the Ute Mountain Ute Tribe finalized a conservation plan (Tribal plan) for Chapin Mesa milkvetch, which was adopted by Resolution by the Ute Mountain Ute Tribal Council in February 2020 (Ute Mountain Ute Tribe 2020, entire). The Tribal plan identifies conservation strategies that the Tribe will use on the Ute Mountain Ute Indian Reservation to enhance the resiliency, redundancy, and representation of Chapin Mesa milkvetch. The Tribal plan calls for management decisions that mitigate direct and indirect impacts to the species and result in the distribution of the species across high-quality, contiguous habitat spanning a range of ecological conditions. While we conclude that this Tribal plan, if implemented, would likely provide benefit to the species, due to uncertainty in future levels of implementation and effectiveness, future conservation efforts outlined in the Tribal plan were not relied upon in our final listing decision.

However, we can consider the conservation actions that the Ute Mountain Ute Tribe has completed and is currently undertaking to conserve this species in our final determination, because conservation actions already implemented and shown to be effective are not subject to PECE. For example, in 2006, 2011, and 2018–2019, the Tribe created fire breaks on the northern end of Chapin Mesa within the Tribal Park to prevent the spread of large wildfires throughout the area (Ute Mountain Ute Tribe 2021, p. 2). The Tribe is also participating in a collaborative research project with the Park, the U.S. Geological Survey, and Northern Arizona University “to identify strategies to enhance Pinyon-juniper resilience in the context of fuels management, wildfire, and climate

change” and is beginning to monitor the species on an annual basis (Ute Mountain Ute Tribe 2021, p. 1). Additionally, the fact that the species’ habitat occurs within a Tribal Park provides additional protections, as the Tribe restricts human activities and land uses within this area (Ute Mountain Ute Tribe 2021, p. 2). The Tribal Park unit has limited road access in Chapin Mesa milkvetch habitat; however, this road is not often used, except for guided tours (Service 2021a, p. 31). This has likely limited the extent of any habitat loss or other human-caused disturbances to the species’ habitat within the Tribal Park. Thus, both the Park and the Tribe are currently managing their lands in a way that also benefits the species.

*Future Conservation Effort: NPS Conservation Plan:* In addition to the activities that the Park and Tribe currently implement to protect pinyon-juniper habitat and reduce wildfire risk, the Park also finalized and approved the “Conservation Plan for Chapin Mesa milkvetch (*Astragalus schmolliae*) at Mesa Verde National Park” (NPS 2018, entire; referred to as “conservation plan”) in September 2018, which details how the Park plans to conserve Chapin Mesa milkvetch in the future. To provide further clarity on the objectives and strategies in the conservation plan, the Park developed an implementation plan in February 2021 (NPS 2021, entire), which “takes objectives outlined in the Chapin Mesa milkvetch Conservation Plan and outlines strategies to meet these desired objectives. The goal of [the implementation plan] is to provide a planned strategy to execute the Chapin Mesa milkvetch conservation plan” (NPS 2021, p. 3). The conservation plan, and associated implementation plan, describe the Park’s conservation effort through detailing clear objectives, the strategies the Park will implement to achieve the objectives, estimated timelines for carrying out the strategies, funding sources, and Park staff responsible for implementing each strategy. The implementation plan is a key component in our determination that future conservation efforts within the Park under the conservation plan meet the requirements of the PECE policy (see analysis below).

The conservation plan's goal is to "reduce threats and stressors to the species to ensure the resiliency, redundancy and representation of the species leading to a self-sustaining healthy population of Chapin Mesa milkvetch. The most intact habitat and densest occurrences will receive the highest level of protection coupled with restoration of altered habitat" (NPS 2018, p. 24). Conservation actions in the conservation plan focus on identification and protection of intact habitat, limitation of development, wildfire prevention, prompt response to and restoration after wildfire, enhanced connectivity, control of invasive plant species, and support of pollinators.

The Service evaluated the Park's conservation plan in accordance with the PECE policy (68 FR 15100; March 28, 2003). Based on our analysis (Service 2021b, entire), which is available at <http://www.regulations.gov> at Docket No. FWS-R6-ES-2018-0055 and which we summarize here, we concluded that the Park's conservation plan, and associated implementation plan, are sufficiently certain to be implemented and effective such that they could be considered as part of the basis for our final listing determination for the species. Using the criteria in PECE (68 FR 15100; March 28, 2003), we evaluated the certainty of implementation and effectiveness of conservation measures in the conservation plan, and associated implementation plan. We determined that the measures will be implemented and effective at eliminating or reducing threats to the species because they will protect intact pinyon-juniper habitat, reduce wildfire risk, and restore degraded habitat (Service 2021b, entire). We have a high degree of certainty that the measures will be implemented because the NPS has a strong track record of implementing conservation measures similar to those covered in the conservation plan, has the legal authority to implement the plan, has detailed the funding source for each planned activity, has provided an implementation schedule (i.e., the implementation plan), and has approved the conservation plan (Service 2021b, entire). The Park has already dedicated portions of its base budget towards carrying out Chapin Mesa

milkvetch conservation and monitoring (Spencer 2021, pers. comm., entire). The Park also has already leveraged partnerships to secure funding and support of projects that benefit the species (Spencer 2021, pers. comm., entire). In both the implementation plan and the Superintendent's January 2021 letter to the Service, the Park indicates that it will use Park budgets and recreation fees to implement the majority of measures in the conservation plan, while pursuing additional funding through partnerships (NPS 2021, p. 3; Spencer 2021, pers. comm., entire).

Further supporting the certainty of implementation, since the Park finalized and approved the conservation plan in September 2018, the Park has been implementing the strategies prescribed in the conservation plan, activities they summarize in a January 20, 2021, letter to the Service (Spencer 2021, pers. comm., entire). For example, the Park has identified key areas for Chapin Mesa conservation and is limiting disturbance and development in these areas, has developed a wildfire emergency response procedure, has funded a genetic study of the species, is conducting soil analyses to determine suitable conditions for the plant, has drafted a livestock removal implementation plan, and is investigating methods to manage and restore pinyon-juniper habitat (Spencer 2021, pers. comm., pp. 1–3). Over the past 3 years, the Park has also successfully kept development below the limits established for each of the three different types of habitat described in the conservation plan, preserving important habitat for Chapin Mesa milkvetch. The conservation plan has sufficient monitoring and adaptive management provisions to ensure that all of the conservation measures are implemented as planned and are effective at reducing threats to the Chapin Mesa milkvetch.

Due to the certainty of implementation and effectiveness of the conservation plan in accordance with PECE, we considered the conservation plan's impacts on the species in our listing determination. This conservation plan, and its associated implementation plan, alter our understanding of the range of plausible future scenarios presented in the

SSA report; the projections of future resiliency, redundancy, and representation in the SSA report; and the risk associated with future stressors. In the SSA, Scenario 3 (the “Pessimistic” scenario) is the only scenario that would result in worsened conditions for the plant. However, as we explain in additional detail below, based on the commitments and strategies in the PECE-compliant conservation plan, we know that the negative impacts of fire management captured in the “Pessimistic” future scenario (Scenario 3) will not occur (Service 2021b, entire).

In the September 17, 2020, proposed rule to list Chapin Mesa milkvetch as a threatened species (85 FR 58224), we expressed uncertainty regarding the benefits of the Park’s management efforts, specifically how development and fuels management activities in the Park could impact the plant. In the proposed rule, we stated that management activities conducted within the Park, such as fuels and fire management, and the development of visitor-related infrastructure, may have direct and indirect impacts to the species (85 FR 58224, September 17, 2020, p. 58230). In the proposed rule, we stated that while fuels reduction activities may help decrease the likelihood of catastrophic fires, they may also have detrimental impacts such as trampling, creating surface disturbances and altering ecological conditions, or facilitating nonnative species invasion, and that the development of existing infrastructure, such as roads, parking lots, a wastewater treatment facility, and buildings within the Park has resulted in a loss of approximately 2 percent of Chapin Mesa milkvetch habitat (85 FR 58224, September 17, 2020, p. 58230). We also noted that several additional infrastructure and fire management projects were planned or under consideration within Mesa Verde National Park (85 FR 58224, September 17, 2020, p. 58230).

The provisions in the Park’s conservation plan now provide assurances that alleviate these concerns about potential negative impacts from development and fuels management. We know that any increases in development predicted under Scenarios 2

and 3 would be within the limits established in the conservation plan and any fire management activities would be carried out with conservation measures that minimize impacts to Chapin Mesa milkvetch (NPS 2018, pp. 24–30; NPS 2021, pp. 4–22). For example, the conservation plan only allows the Park to develop an additional 1.8 percent of Chapin Mesa milkvetch “Level 1” habitat (intact, old-growth pinyon juniper woodland) (NPS 2018, p. 27). Moreover, this development will incorporate minimization measures to reduce impacts of any development on the species and its habitat (Objectives 3 and 10 in NPS 2021, pp. 10–11, 21–22). The conservation plan also limits the areas in which the Park will conduct fuels treatments and details measures to minimize the impacts of these treatments; while fuels treatments can help prevent catastrophic fire, these activities can also incidentally negatively impact Chapin Mesa milkvetch habitat through trampling, facilitation of cheatgrass invasion, and small-scale burning of plants if Park staff members burn excess fuel on top of Chapin Mesa milkvetch habitat. The conservation plan dictates that the Park will only conduct fuels reduction management in an additional 19 percent of Chapin Mesa milkvetch habitat in the Park and that all of these treatments will include the adoption of minimization measures to protect Chapin Mesa milkvetch and its habitat, such as hand-carrying out fuels instead of pile burning, when possible (NPS 2018, p. 14; Objectives 4, 5, 6, 8, and 10 in NPS 2021, pp. 11–27, 18–19, 21–22). These minimization measures lessen the potentially negative side-effects that fuels management could have on Chapin Mesa milkvetch and its habitat and will result in a 50 percent reduction of impacts to the species from fuels management in the future (NPS 2018, p. 14; Objectives 4, 5, 6, 8, and 10 in NPS 2021, pp. 11–27, 18–19, 21–22). By reducing the intensity of treatments and incorporating minimization measures, the fuels management detailed in the conservation plan will likely provide a net benefit to Chapin Mesa milkvetch because it will protect the

species and its habitat from large-scale, stand-replacing wildfires while reducing direct impacts of treatments on the plant and its habitat.

Furthermore, according to the implementation plan, the Park “will not plan development or fuels management treatments on Park Mesa or West Chapin Mesa Spur so that these sites can be retained for future introductions or range expansions” (NPS 2018, p. 27); in the conservation plan, the Park commits to developing a plan for reintroduction on Park Mesa (NPS 2018, pp. 30–31). The Park will research and pursue an *ex situ* conservation effort (NPS 2018, p. 33; NPS 2021, p. 27). Pending the outcomes of soil and habitat suitability studies, the Park is also preserving 6,264 acres on North Chapin Mesa, Park Mesa, and Moccasin Mesa in sufficient condition to allow for introduction if necessary (Spencer 2021, pers. comm., p. 2; NPS 2018, p. 31). If the Park deems reintroduction projects necessary and pursues them, this reintroduction could provide additional redundancy for the species in the future, though this remains uncertain and we did not rely on these potential increases in our analysis of species status (NPS 2021, pp. 11–12).

Additionally, the conservation plan’s provisions address the threat of nonnative, invasive vegetation that we identified as a concern in the proposed rule. The risk of invasion of nonnative vegetation is already low in areas with intact pinyon-juniper overstory. In the conservation plan, the Park commits to maintaining minimal disturbance and development in these areas with intact pinyon-juniper overstory to reduce the likelihood of nonnative plant invasion in these highly resilient areas. The Park also commits to recovering burned, degraded areas such that pinyon-juniper trees are restored “to more than 10 percent canopy cover” and invasive plants are reduced “to less than 5 percent cover,” further reducing the risk invasive vegetation poses to the species (NPS 2018, pp. 26, 29; NPS 2021, pp. 7–9, 19–21). The Park is collaborating with the

Tribe to research effective methods of restoring pinyon-juniper habitat (Spencer 2021, pers. comm., p. 3; NPS 2021, pp.7-9).

The September 17, 2020, proposed rule (85 FR 58224) also attributed risk of extinction in the foreseeable future to the high potential for a future catastrophic event, such as a catastrophic wildfire, that could affect all or a large portion of the species' range, given the species' inherently limited redundancy and the fact that 97 percent of the species' known range is concentrated in the Park. The conservation plan, implementation plan, and the Park's new standard operating procedures for wildfire management, which are documented in their 2020 wildfire emergency response procedure, also shed new light on these concerns. As we explain above, the strategies and commitments in the conservation plan and implementation plan indicate that the management actions predicted in Scenario 3 will not occur in the future; we know that the Park will not do less invasive species control, will not significantly increase potentially detrimental fire management activities, will not significantly increase development, and will not open currently closed roads and trails (NPS 2018, pp. 24–30; NPS 2021, pp. 4–22). Scenario 3 was the only scenario in the SSA report that would result in worsened conditions for the species. However, while the provisions in the conservation plan ensure that the management components of this “pessimistic” future scenario will not occur, the “hot and dry” climate conditions associated with this scenario could still happen (Service 2021a, p. 39). These climate conditions could increase the frequency of wildfire 8-fold and the amount of area burned 11-fold, which partially influenced the worsened resiliency in this future scenario in the SSA (Rondeau et al. 2017, pp. 10–11, 15–17, Appendices C and D). However, these projected increased risks and impacts of catastrophic wildfire assume no fire management or prevention. Wildfire management and response measures in the Park's conservation plan, implementation plan, and wildfire emergency response procedure, which the Park has committed to incorporating into a long-term fire



management plan by 2022, ensure that the Park will take action to prevent fire, while minimizing impacts of this management on the species; they also ensure that the Park will respond to fire immediately with the intent to fully suppress it (NPS 2018, pp. 27–29; NPS 2020, entire; NPS 2021, pp. 12–17). These efforts decrease the potential influence of climate change and associated wildfire on the species in all future scenarios, further reducing the plausibility and likelihood of the resiliency outcomes of the “Pessimistic” future scenario, the only scenario in which the species’ future resiliency would worsen relative to current condition.

### **Determination of Species Status**

Section 4 of the Act (16 U.S.C. 1533) and its implementing regulations (50 CFR part 424) set forth the procedures for determining whether a species meets the definition of “endangered species” or “threatened species.” The Act defines an “endangered species” as a species that is in danger of extinction throughout all or a significant portion of its range and a “threatened species” as a species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The Act requires that we determine whether a species meets the definition of an “endangered species” or “threatened species” because of any of the following five factors:

- (A) The present or threatened destruction, modification, or curtailment of its habitat or range;
- (B) Overutilization for commercial, recreational, scientific, or educational purposes;
- (C) Disease or predation;
- (D) The inadequacy of existing regulatory mechanisms; or
- (E) Other natural or manmade factors affecting its continued existence.

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to the Chapin Mesa milkvetch. Potential stressors to the Chapin Mesa milkvetch that we evaluated include invasive, nonnative plants (Factor A); wildfires (Factor A); post-fire mitigation (Factor A); wildfire and fuels management (Factor A); trampling and herbivory (Factors A and C); development of infrastructure (Factor A); drought (Factor A and Factor E); and effects of climate change (Factor A and Factor E) (Service 2021a, pp. 13–22). There is no evidence that overutilization (Factor B) of Chapin Mesa milkvetch, disease (Factor C), or other natural or manmade factors affecting the species (Factor E) are occurring. Existing regulatory mechanisms (Factor D) are discussed above.

We evaluated each potential stressor, including its source, affected resources, exposure, immediacy, geographic scope, magnitude, and impacts on individuals and populations, and our level of certainty regarding this information, to determine which stressors were likely to be drivers of the species' current condition (Service 2021a, Appendix A). Our analysis found that the primary drivers of the Chapin Mesa milkvetch's current and future condition are the increased frequency of large, high-intensity wildfires; increasing presence of invasive, nonnative plants, especially cheatgrass; and the interaction between these elements, as explained further in the SSA report (Service 2021a, pp. 13–22).

#### *Status Throughout All of Its Range*

In our September 17, 2020, proposed rule to list Chapin Mesa milkvetch as a threatened species (85 FR 58224), we concluded that the species did not meet the definition of an endangered species under the Act. The new information we received since we published that proposed rule does not change our original conclusion regarding the species' current risk of extinction. We still find that the Chapin Mesa milkvetch is not currently in danger of extinction throughout its range. The species currently has a

large representative subunit (the unburned Chapin Mesa subunit) that is considered highly resilient, based on the quality of habitat conditions for Chapin Mesa milkvetch. This large area of habitat (1,265 ac (512 ha)) in a highly resilient subunit likely provides the Chapin Mesa milkvetch some ability to withstand stochastic events, such as drought, that are within the normal range of yearly variation, and to complete its life cycle. Additionally, all four representative units are currently in moderate condition, providing for some additional redundancy and representation, given the relatively healthy status of multiple representative units across the species' range. Moreover, three of these four units occur on geographically separate mesa tops; the steep cliffs between these mesa tops provide natural fire breaks between the representative units, reducing the likelihood that a single wildfire could impact all four representative units at the same time. In addition to these natural fire breaks, the constructed fire break between the Park and the Ute Mountain Ute Tribal Park further enhances redundancy of the species, limiting the ability of a catastrophic wildfire to spread along Chapin Mesa and impact representative units in both the Park and on Tribal lands. Therefore, the risk of extinction now is low, and the species is not currently in danger of extinction throughout its range.

The Act defines an “endangered species” as any species that is in danger of extinction throughout all or a significant portion of its range and a “threatened species” as any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. As we discuss in detail under **Summary of Biological Status and Threats**, the best available information on how potential future climate conditions could affect the specific ecological communities on which Chapin Mesa milkvetch depends considers this ecological response only through 2035 (Rondeau et al. 2017, pp. 9–11). Given the uncertainties regarding wildfire risk and species' response past 2035, future conditions further into the 21st century are less reliable and foreseeable (see 84 FR 45020, August 27, 2019, p. 45027). We can,

however, make reliable predictions about the threats to and response of Chapin Mesa milkvetch through 2035. We thus consider the foreseeable future for the Chapin Mesa milkvetch to be to the year 2035, given the available climate data specific to the San Juan Basin in southwestern Colorado, where Chapin Mesa milkvetch occurs, and based on the available analyses on the response of pinyon-juniper communities to these climate changes.

Based on the new information in the Park's conservation plan, implementation plan, and wildfire emergency response procedure, we find that the Chapin Mesa milkvetch is not likely to become endangered within the foreseeable future throughout all of its range. First, we now know that any increases in development predicted under Scenarios 2 and 3 would be within the limits established in the conservation plan and any fire management activities would be carried out with conservation measures that minimize impacts to Chapin Mesa milkvetch (NPS 2018, pp. 24–30; NPS 2021, pp. 4–22). More generally, we know that the Park's conservation plan and implementation plan indicate that the management components of Scenario 3 will not come to fruition; we know that the Park will not do less invasive species control, will not significantly increase potentially detrimental fire management activities, will not significantly increase development, and will not open currently closed roads and trails (NPS 2018, pp. 24–30; NPS 2021, pp. 4–22). Second, the Park's conservation plan, implementation plan, and new wildfire emergency response procedure, which the Park has committed to incorporating into a long-term fire management plan by 2022, ensure that the Park will take action to prevent fire, while minimizing impacts of this management on the species; they also ensure that the Park will respond to fire immediately with the intent to fully suppress it (NPS 2018, pp. 27–29; NPS 2020, entire; NPS 2021, pp. 12–17). These conservations efforts decrease the potential influence of climate change and associated wildfire on the species in all future scenarios, further reducing the plausibility and

likelihood of the outcomes of Scenario 3, the only scenario in which the species' future condition would worsen relative to current condition.

Given the Park's commitments in the conservation plan and implementation plan, which we describe in additional detail in *Summary of Factors Influencing Viability* above, it is likely that the resiliency of the representative units in the Park (Chapin Mesa, Park Mesa, and West Chapin Spur) will remain the same as current condition or improve in the foreseeable future due to habitat restoration efforts and management of wildfire risk. These maintained or improved levels of resiliency would continue to provide for reduced catastrophic risk and enhanced ability to adapt to future environmental change, especially considering the inherently limited range of this narrow endemic plant. The four extant representative units distributed across three geographically distinct mesa tops reduces the risk of losing all individuals in a catastrophic fire, especially considering that the separate mesa tops provide natural fire breaks that would prevent fire from spreading between representative units. The constructed fire break between Mesa Verde National Park and the Tribal Park further reduces the likelihood of fire spreading along Chapin Mesa, between the Park and Tribal land.

Even though much uncertainty remains as to the condition of Chapin Mesa milkvetch occurrences on Tribal lands, both now and into the future, we analyzed the status of the species based on the best available information on the future of species' threats and conservation efforts. While the Tribe is actively providing conservation for the species, information about the future of the species' threats and conservation is currently only available and certain for the occurrences in the Park. However, the certainty of implementation and effectiveness of conservation efforts in the Park, in addition to the fire breaks between Mesa Verde National Park and the Tribal Park, provided confidence that the species would maintain sufficient levels of resiliency,

redundancy, and representation into the foreseeable future, even without similarly certain future conservation commitments on Tribal lands.

The Park's implementation plan, which was provided after we published the proposed rule, in addition to new standard operating procedures for fire management at the Park, documented in the wildfire emergency response procedure, thus reduce the likelihood of Chapin Mesa milkvetch becoming an endangered species in the foreseeable future. Therefore, based on the Park's commitments to maintain and restore pinyon-juniper overstory, to conduct fire management such that it reduces the risk of catastrophic wildfire in the Park while also minimizing impacts to the species, and to quickly suppress fire, the resiliency, redundancy, and representation of Chapin Mesa milkvetch will likely remain the same or better than current condition into the foreseeable future; thus, the risk of extinction remains low for Chapin Mesa milkvetch into the foreseeable future.

Therefore, after assessing the best available information, we conclude that the Chapin Mesa milkvetch is not in danger of extinction now nor is it likely to become so in the foreseeable future throughout all of its range.

#### *Status Throughout a Significant Portion of Its Range*

Under the Act and our implementing regulations, a species may warrant listing if it is in danger of extinction or likely to become so in the foreseeable future throughout all or a significant portion of its range. Having determined that the Chapin Mesa milkvetch is not in danger of extinction or likely to become so in the foreseeable future throughout all of its range, we now consider whether it may be in danger of extinction or likely to become so in the foreseeable future in a significant portion of its range—that is, whether there is any portion of the species' range for which it is true that both (1) the portion is significant; and (2) the species is in danger of extinction now or likely to become so in the foreseeable future in that portion. Depending on the case, it might be more efficient for us to address the “significance” question or the “status” question first. We can choose

to address either question first. Regardless of which question we address first, if we reach a negative answer with respect to the first question that we address, we do not need to evaluate the other question for that portion of the species' range.

In undertaking this analysis for the Chapin Mesa milkvetch, we choose to address the status question first—we consider information pertaining to the geographic distribution of both the species and the threats that the species faces to identify any portions of the range where the species is endangered or threatened.

Chapin Mesa milkvetch is a narrow endemic that functions as a single, contiguous population and occurs within a very small area. As described in the SSA report (Service 2021a, pp. 4–5), the species' global distribution is constrained almost entirely to Chapin Mesa in southern Colorado, with some outlying subunits on neighboring Park Mesa and West Chapin Spur (Rondeau 2017, p. 1). Chapin Mesa milkvetch habitat occupies approximately 2,000 ac (809 ha) in the Park (CNHP 2010, pp. 12–19; Anderson 2004, p. 25, 30). This species is considered to consist of one large, interconnected population, and like many rare plants, Chapin Mesa milkvetch is globally rare, but is locally abundant throughout its occupied habitat (Rondeau 2017, p. 1). Thus, there is no biologically meaningful way to break this limited range into portions, and the threats that the species faces affect the species throughout its entire range. This means that no portions of the species' range have a different status from its rangewide status. Therefore, no portion of the species' range can provide a basis for determining that the species is in danger of extinction now or likely to become so in the foreseeable future in a significant portion of its range, and we find the species is not in danger of extinction now or likely to become so in the foreseeable future in any significant portion of its range. This is consistent with the courts' holdings in *Desert Survivors v. Department of the Interior*, No. 16–cv–01165–JCS, 2018 WL 4053447 (N.D. Cal. Aug. 24, 2018), and *Center for Biological Diversity v. Jewell*, 248 F. Supp. 3d, 946, 959 (D. Ariz. 2017).

## *Determination of Status*

We have reviewed the best available scientific and commercial information regarding the past, present, and future threats to the Chapin Mesa milkvetch, and we have determined that Chapin Mesa milkvetch does not meet the definition of an “endangered species” or a “threatened species” in accordance with sections 3(6) and 3(20), respectively, of the Act. Therefore, we are withdrawing our proposed rule to list the Chapin Mesa milkvetch as a threatened species and to designate critical habitat.

## **References Cited**

A complete list of references cited in this document and the Chapin Mesa milkvetch SSA report are available on the Internet at <http://www.regulations.gov> at Docket No. FWS–R6–ES–2018–0055 and upon request from the Colorado Ecological Services Office (see **FOR FURTHER INFORMATION CONTACT**).

## **Authors**

The primary authors of this document are the staff members of the Colorado Ecological Services Office and the Mountain-Prairie Regional Office.

## **Authority**

The authority for this action is the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

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**Martha Williams,**  
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